UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/429,339	10/28/1999	ALAN L. DAVIS	TI-28475	5805

			EXAMINER
23494	7590	12/30/2003	KENDALL, CHUCK O

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 October 2003_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-3,6-16 and 19-27_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,6-16 and 19-27_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .   6) ☐ Other: .

DETAILED ACTION

Summary

1.   This Office Action is the response to the communication received

on October 1, 2003. Reconsideration of the instant application is

requested by Applicant. All such supporting documentation has been

placed of record in the file. Claims 1-3, 6-16, 19-27 are pending.

    a.   Previously claims 1-3, 6-16, 19-27 were rejected under 35

    U.S.C. § 103(a) as being unpatentable over Benson USPN

    5,598,560 and Ma USPN 5,933,641.

    b.   In this action, Applicant has amended claims 1, 14 and 27, and

    hence new grounds of rejections has been necessitated by the

    amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis

for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or
described as set forth in section 102 of this title, if the differences between the subject
matter sought to be patented and the prior art are such that the subject matter as a whole
would have been obvious at the time the invention was made to a person having ordinary
skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

3. Claims 1, 2, 6, 10, 14,15, 19, 23, 27 are rejected under 35 U.S.C.

103(a) as being unpatentable over Benson USPN 5,598,560 in view of Overturf

et al. USPN 6,151,702.

Regarding claims 1,14, and 27, Benson discloses a translation system

(Fig. 1), method (Col. 20:63-21:45) for translating a source device program for a

source device into for a target device, [3:60-4:10] the system comprising:

a front end for identifying source elements in the source device program

[Fig.1,20];

a back end for generating a translation file having translation elements

corresponding to translation of the identified source device program elements.

Benson, doesn't explicitly disclose the backend including a graphic user

interface, the graphic user interface for displaying the identified source device

program elements with the corresponding translation elements, the graphic user

interface having an input unit, the input unit permitting a user to modify the

translation elements based on comparison with the aligned source device

program elements [8:52-6].

However, Overturf does disclose this feature in a similar configuration

(Col.6:50-60, also see fig. 3, 3a and 3b). Therefore it would have been obvious

to one of ordinary skill in the art at the time the invention was made to modify

Benson with Overturf to implement the instant claimed invention because,

viewing corresponding source code and translated instructions makes

debugging/fixing errors more efficient.

Regarding claim 2, the system of claim 1, wherein the source file is for a

source device and the translation file is for a disparate target device [Benson,

Fig. Part #1, 21,13, 25].

Regarding claim 6, the system of claim 1, wherein said translation is a

context-dependent translation based on static analysis of the source file [Benson,

3:60-65, see parsing].

Regarding claim 10, the system of claim 1, wherein the graphic user interface is a display processor [Overturf, see Fig.1, 5].

Regarding claim 15, the method of claim 14, wherein the source file is for a source device and the translation file is for a disparate target device [Benson, Fig. 1].

Regarding claim 19, which is the method version of the system claim 6, see rationale as previously discussed above.

Regarding claim 23, which is the method version of the system claim 10, see rationale as previously discussed above.

4. Claims 3, 7-9, 11-13, 16, 20-22, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson USPN 5,598,560 in view of Overturf et al. USPN 6,151,702 and further in view of Ma USPN 5,933,641.

Regarding claim 3, Benson as modified with Overturf discloses all the claimed limitations as applied above. Neither Benson nor Overturf explicitly teach assembly file for a target device and the translation file is a scheduled assembly file for that device. However, Ma does disclose this in a similar configuration [Ma, Fig 2. part # 21 also refer to Fig. 2, #10,12,21]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benson as modified with Overturf with Ma to implement the instant claimed invention because, mapping instructions during translation using different formats or instruction sets makes translating code more efficient.

Regarding claim 7, the system of claim 1, Benson as modified with Overturf discloses all the claimed limitations as applied above as well as a translator for performing a context-dependent translation, the translator comprising:

a source machine description containing a description of source opcodes and source operands in a generic representation [Benson, 3:60-67]

a target machine description containing a description of target opcodes and target operands in a generic representation [Benson,8:53-60];

wherein the translator receives a source instruction from said front end, utilizes the translation machine description and source machine description and target machine description to translate source elements into target elements [Benson,8:13-32]. Neither Benson nor Overturf explicitly teach a translation machine description for mapping source opcodes to target opcodes. However, Ma does disclose this in a similar configuration [Ma, Fig.2]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benson as modified with Overturf with Ma to implement the instant claimed invention because, mapping instructions during translation to a different instruction sets makes translating code more efficient.

Regarding claim 8, the system of claim 7, wherein the proper target opcode is chosen from a group of potential target opcodes by comparing the target opcode and target operand with the source opcode and source operand [Overturf, Fig. 3, also see Fig. 27, for match un match].

Regarding claim 9, the system of claim 7, wherein two or more source opcodes can be combined to a single target opcode when there is a target opcode that represents the two or more source code opcodes [see table for {and opcode} as interpreted].

Regarding claim 11, system of claim 10, Benson as modified with Overturf discloses all the claimed limitations as applied above. Neither Benson nor Overturf explicitly teach wherein the graphical user interface displays at least a portion of the source elements in a source window, at least a portion of the translation elements in a translation window, and the source and translation windows are displayed side-by-side. However, Ma does disclose this in a similar configuration [Ma, 5:40-50]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benson as modified with Overturf with Ma to implement the instant claimed invention

because, maintaining displaying source and translation side by side would make code management more visual.

Regarding claim 12, see reasoning in claim 11, aligned same as side by side.

Regarding claim 13, see reasoning in claim 11 for displaying.

Regarding claim 16, which is the method version of the system claim 3, see rationale as previously discussed above.

Regarding claim 20, the system of claim 14, Benson as modified with Overturf discloses all the claimed limitations as applied above. Neither Benson nor Overturf explicitly teach converting an opcode of a source machine to an opcode of a translation machine file by comparing the source opcode to possible translation opcodes or by comparing an operand of the source opcode in a generic expression with generic expression for a translation operand. However, Ma does disclose this in a similar configuration [Ma, 5:40-50]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benson as modified with Overturf with Ma to implement the instant claimed invention because, comparing during translation from one instruction to another makes translating more targeted and efficient.

Regarding claim 21, the system of claim 20, Benson as modified with Overturf discloses all the claimed limitations as applied above. Neither Benson nor Overturf explicitly teach wherein the step of converting an opcode of the source file further comprises choosing a translation opcode from a group of potential translation opcodes by comparing the translation opcode and translation operand with the source opcode and source operand. However, Ma does disclose this feature in a similar configuration [Ma, 5:40-50, see viewing and determining from different numeric formats]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benson as modified with Overturf with Ma to implement the instant claimed invention because, comparing code and mapping during translation from

one instruction to another makes translating to different instruction sets or architectures more efficient.

Regarding claim 22, the method of Claim 20, wherein the step of converting the source opcode further comprises the step of combining two or more source opcodes into a single translation opcode when there is a translation opcode that represents the two or more source opcodes [Benson Fig.1, item # 23, object modules are linked into one image file on the target system].

Regarding claim 24, which is the method version of the system claim 11, see rationale as previously discussed above.

Regarding claim 25, which is the method version of the system claim 12, see rationale as previously discussed above.

Regarding claim 26, which is the method version of the system claim 13, see rationale as previously discussed above.

Response to Arguments

5. Examiner has evaluated applicant's arguments of 11/21/02 correspondence, which has been fully considered Applicant's arguments with respect to claims 1-3, 6-16,19-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the mailing
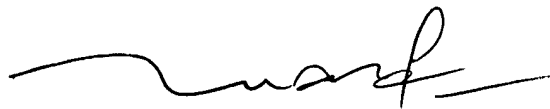
date of this final action.

Correspondence

7.   Any inquires concerning this communication or earlier

communications from the examiner should be directed to Chuck O.

Kendall who may be reached via telephone at (703) 308-6608.

The examiner can normally be reached Monday through Friday

between 8:00 A.M. and 5:00 P.M. est.

If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Tuan Dam *can be* reached at

(703) 305-4552.

Any inquiry of a general nature or relating to the status of this

application or proceeding should be directed to the Group

receptionist whose telephone number is (703) 305-3900.

For facsimile (fax) send to central FAX number 703-872-9306 *and*
703-7467240 draft.

Chuck O. Kendall

Software Engineer Patent Examiner
United States Department of Commerce

TUAN DAM
SUPERVISORY PATENT EXAMINER